

WHAT IS CLAIMED IS:

1. A method for reducing exposure times of high density patterns on a photomask, comprising:

5 moving a selected feature from a first pattern file to a second pattern file, the selected feature located in a cell between a first boundary and a second boundary; and

10 exposing a resist layer of a photomask blank with the first pattern file by using a step and repeat technique.

2. The method of Claim 1, further comprising:

15 exposing the resist layer with the second pattern file; and developing the resist layer to form the cell and the selected feature.

3. The method of Claim 1, wherein the step and repeat technique comprises:

20 processing data associated with the cell from the first pattern file; dividing the cell into a plurality of sections; and individually exposing the sections in the resist layer until the cell is completely formed in the resist
25 layer.

4. The method of Claim 1, further comprising the cell including a plurality of features located inside of the second boundary.

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5. The method of Claim 1, wherein moving the selected feature comprises:

reducing dimensions of the cell in the first pattern file to form a reduced cell that excludes the selected
5 feature; and

inserting a blocking feature into the second pattern file, the blocking feature corresponding in size to the reduced cell in the first pattern file.

10 6. The method of Claim 5, wherein the reducing comprises moving the first boundary to correspond with the second boundary.

15 7. The method of Claim 5, further comprising the blocking feature operable to prevent the resist layer from being exposed in an area inside the second boundary.

20 8. The method of Claim 1, further comprising the second boundary located inside of the first boundary, the first and second boundaries separated by approximately one micron to approximately ten microns.

25 9. The method of Claim 1, further comprising the selected feature including a design feature and an optical proximity correction associated with the design feature.

10. A method for fabricating a photomask,
comprising:

providing a photomask blank that includes a resist
layer;

5 moving a plurality of optical proximity correction
(OPC) features from a first pattern file to a second
pattern file, the OPC features respectively located
between an outer boundary and an inner boundary for a
plurality of cells in an array;

10 exposing the resist layer of the photomask blank
with the first pattern file by using a step and repeat
technique;

exposing the resist layer with the second pattern
file; and

15 developing the resist layer to form the array and
the OPC features.

11. The method of Claim 10, wherein the step and
repeat technique comprises:

20 processing data associated with a selected cell from
the first pattern file;

dividing the selected cell into a plurality of
sections;

25 sequentially exposing the sections from the selected
cell with the first pattern file; and

repeating the processing, dividing and exposing
steps for each of the cells in the array until the cells
are exposed in the resist layer.

12. The method of Claim 10, wherein moving the OPC features comprises:

reducing dimensions of the cells in the first pattern file to form respective reduced cells that
5 exclude the OPC features; and

inserting a plurality of blocking features into the second pattern file, the blocking features corresponding in size to the reduced cells and preventing respective portions of the resist layer from being exposed inside
10 the inner boundary.

13. The method of Claim 12, wherein reducing the dimensions of the cells comprises moving the outer boundary to correspond with the inner boundary.

14. The method of Claim 10, wherein moving the OPC features comprises replacing the OPC features in the first pattern file with a plurality of blocking features.

15. The method of Claim 10, further comprising the outer and inner boundaries separated by approximately one micron to approximately ten microns.

16. The method of Claim 10, further comprising
25 moving a plurality of design features associated with the OPC features from the first pattern file to the second pattern file.

17. Logic encoded in media for reducing exposure times of high density patterns on a photomask and operable to perform the following steps:

moving a selected feature from a first pattern file
5 to a second pattern file, the selected feature located in a cell between a first boundary and a second boundary; and

10 exposing a resist layer of a photomask blank with the first pattern file by using a step and repeat technique.

18. The method of Claim 17, further comprising:
exposing the resist layer with the second pattern file; and

15 developing the resist layer to form the cell and the selected feature.

19. The logic of Claim 17, further comprising:
moving the first boundary to correspond with the
20 second boundary in the first pattern file to exclude the selected feature; and

inserting a blocking feature into the second pattern file, the blocking feature including dimensions corresponding to dimensions of the second boundary.

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20. The logic of Claim 17, wherein the step and repeat technique comprises:

processing data associated with the cell from the first pattern file;

- 5 dividing the cell into a plurality of sections; and
 individually exposing the sections of the cell in the resist layer until the cell is formed in the resist layer.

21. A photomask including high density patterns
formed thereon by a method comprising:

moving a selected feature from a first pattern file
to a second pattern file, the selected feature located in
5 a cell between a first boundary and a second boundary;

exposing a resist layer of a photomask blank with
the first pattern file by using a step and repeat
technique;

10 exposing the resist layer with the second pattern
file; and

developing the resist layer to form the cell and the
selected feature.

22. The photomask of Claim 21, wherein moving the
15 selected feature comprises:

reducing dimensions of the cell in the first pattern
file to form a reduced cell that excludes the selected
feature; and

20 inserting a blocking feature into the second pattern
file, the blocking feature corresponding in size to the
reduced cell in the first pattern file.

23. The photomask of Claim 22, wherein the reducing
comprises moving the first boundary to correspond with
25 the second boundary.